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NOTES ON GEOGRAPHIC DISTRIBUTION

Range extension of *Plumarius brasiliensis* Penteado-Dias and Scatolini, 2003 (Hymenoptera: Plumariidae) in Northeastern Brazil

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ABSTRACT: *Plumarius brasiliensis* is only known from the type locality, the State of Rio Grande do Norte, Brazil. We expand its distribution 1,193 km south of the type locality, in the states of Bahia and Ceará, Brazil. This species is possibly restricted to the dry areas of Northeastern Brazil.

Plumariidae are rare and unusual wasps within Chrysidoidea. Little is known about their biology but that larvae are primarily idiobiont ectophages (Hanson and Gauld 1995). Sexual dimorphism is severe in this family; males are winged whereas females are apterous. Female of only one species have ever been named and described (Perez D'Angelo 1974), all from South America. These females have a flattened body and strong, spiny legs (Diez and Roig-Alsina 2008), which suggests a fossorial habit (Evans 1966; Diez and Roig-Alsina 2008). Males are frequently collected in light traps (Finnamore and Brothers *in* Goulet and Huber 1993; Diez and Roig-Alsina 2008) and are distinguished by having 11 antennal flagellomeres with long erect setae (Finnamore and Brothers *in* Goulet and Huber 1993). Long legs, lack of constriction between the first two metasomal segments (Evans 1966), and wings with accessory veins on apex (Brothers 2011) are also diagnostic in the family.

The current fauna of Plumariidae is represented by approximately 20 species (Goulet and Huber 1993). There are seven described genera distributed through the arid and semiarid regions of South America and Africa, which suggests a putatively Gondwana distribution (Brothers 2011). In South America, plumariids occur from Ecuador and Brazil to Chile and Argentina, with higher diversity in the xeric regions of the latter two countries (Brothers 2011).

Plumarius Philippi is a Neotropical species-rich genus. It has twelve described species and numerous undescribed species (Diez *et al.* 2012). *Plumarius brasiliensis* Penteado-Dias and Scatolini (2003) has only been recorded from the type locality, Água Branca, state of Rio Grande do Norte, Brazil (Penteado-Dias and Scatolini 2003). This species is separated from other *Plumarius* species by having a distinguished antenno-ocular distance and aedeagus with apical lateral projections (Penteado-Dias and Scatolini 2003). *Plumarius brasiliensis*, and the family Plumariidae, are recorded here for the first time from the states of Bahia and Ceará, Brazil (Figure 1).

On 4 October 1991 a male specimen of *P. brasiliensis* was sampled with a Malaise trap in Fazenda Boa Vista, municipality of Palmas de Monte Alto, state of Bahia. Fifteen additional specimens were collected with light traps on 25-26 June 2010 in the Estação Ecológica do Castanhão, Nova Jaguaribara, state of Ceará. The light trap was placed 142 m from a pond shore at 1700 h and collected the next day at 800 h. Specimens were collected in soapy water and transferred into 95% ethanol. Our species identification agrees with the description of *P. brasiliensis* by Penteado-Dias and Scatolini (2003), and no substantial variation was found among individuals. Although an entire week was spent in the field (22-29 June 2010), all fifteen male specimens were collected in a single night, which might suggest some aggregation behavior of males.

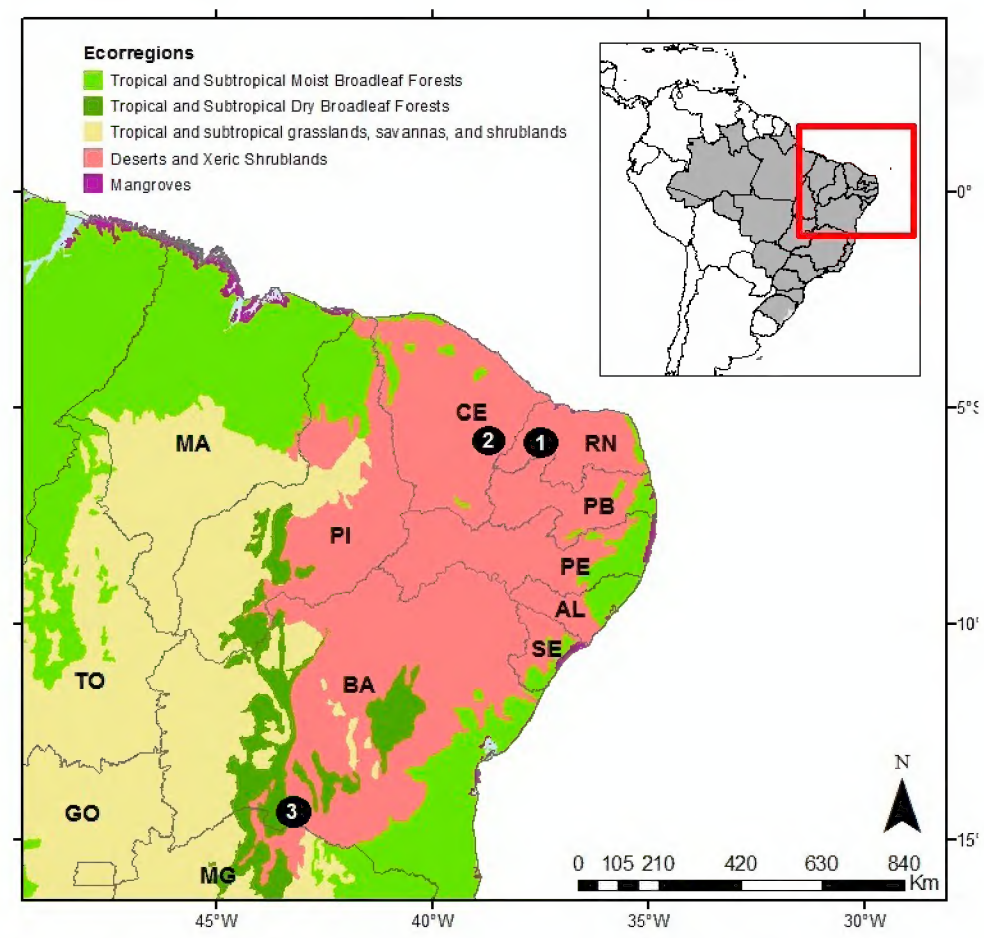

FIGURE 1. Distribution records of *Plumarius brasiliensis*. (1) type locality, (2) state of Ceará, (3) state of Bahia (Ecoregion source: World Wildlife Fund).

It is possible that *P. brasiliensis* is a common and abundant species in the dry areas of Brazil. Upon examination, the species appear morphologically adapted to nocturnal habits. They have large ocelli, brownish coloration and a setose body, similar to males of other nocturnal families common in semi-desertic or desert areas, such as Bethylidae, Mutillidae, Chyphotidae, and Tiphiidae. In Bethylidae, for instance, the ocelli of the nocturnal species *Pseudisobrachium illippum* Evans, 1969 is very large, with the diameter of anterior ocellus 0.26x the width of frons. That is more than twice as large as the average of the genus (see Figure 202 at Azevedo 2008).

We expand the distribution of *Plumariius* and Plumariidae farther into the arid regions of northeastern Brazil. It is possible that this species is restricted to the desert and xeric shrublands areas in Brazil. Finally, our records expand the distribution of *P. brasiliensis* 1,193 km south of the type locality (Figure 1).

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Plumariidae, Brues 1924

Plumarius Philippi, 1873

Plumarius brasiliensis Penteado-Dias and Scatolini 2003

Material examined. BRAZIL, 01 male, *Bahia*, Palmas de Monte Alto, Fazenda Boa Vista, 1-4.X.[19]91, Malaise Trap, D. Pimentel col. (MPEG); 15 males, *Ceará*, 22.5 km S Nova Jaguaribara, 5°40.347'S 38°27.610'W, 142 m pond shore, 25-26.vi.2010, light trap, C. Waichert et al. col. (UFES).

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